

REMARKS

The Examiner is thanked for the careful examination of the application, and for the interview granted Applicants' attorney on January 13, 2004. In response to the Official Action and the discussions held at the interview, the foregoing amendments have been made. It is believed that the foregoing amendments are consistent with the discussions held at the interview.

Restriction:

In response to the restriction requirement, claims 1-13 have been cancelled as being non-elected. Claims 21 and 23 are pending in that they depend from an elected claim, and should thus be allowable in the event that claim 14 is found to be allowable.

Drawings:

In response to the objection to the drawings, the specification has been amended to remove the description of Figures 10 and 11 as being "conventional". Applicants submit that they have no specific knowledge of Figures 10 and 11 being prior art, as that term is understood by 35 U.S.C. § 102 or § 103. Submitted herewith is an Information Disclosure Statement submitting JP 07-326490 for consideration of the Examiner. The structure disclosed in JP 07-326490 has some similarities to Figures 10 and 11 of the present application, but in other ways, is different.

Also, in order to complete the record, Applicants have also made Katsura of record on the Information Disclosure Statement submitted herewith. Katsura was applied against the claims in the present application in the Official Action dated September 26, 2003.

In the event that the Examiner has further questions or issues relating to the drawings, the Examiner is respectfully urged to telephone the undersigned attorney so that such issues can be addressed promptly.

Art Rejections:

Claims 14, 16, 18, 29, and 30 have been rejected under 35 U.S.C. § 103(a) as being allegedly obvious over U.S. Patent No. 4,897,172, hereinafter Katsura in view of either the admitted prior art of the instant application or U.S. Patent No. 4,401,546, hereinafter Nakamura.

In response to the rejection, claim 14 has been amended. Claim 14 now indicates that the processing chamber has an axially extending side wall and that the grounded metal shield is arranged within the processing chamber such that only a dielectric material is between the cathode and the wall of the processing chamber within the axial extent of the cathode. The foregoing amendments to claim 14 do not conflict with the restriction requirement because claim 14 defines "a dielectric material", which as indicated in paragraph [0032] of the application, may include air. Accordingly, the amendment to claim 14 is different than adding the restricted "dielectric ring" into the claims.

One of the objects of the present invention is to minimize or reduce stray capacitance between the cathode and the processing chamber. The relevant prior art structures typically include some type of metal, grounded structure adjacent the cathode, which, as explained in the specification, enables a capacitance to be developed between the cathode and the metal portion. See paragraphs [0030]-[0032] of the present specification.

For example, in Katsura, the processing chamber includes a target flange 12, which is connected to the chamber wall, and exists adjacent the cathode 13. Based on the illustrations in the Katsura reference, it is clear that a capacitance may be developed between the cathode 13 and the target flange 12. Also, in the structure illustrated in Figures 10 and 11 of the present specification, the plate 24 is axially adjacent the cathode 14, thus providing an opportunity for capacitance.

According to the present invention, by having only a dielectric material between the cathode and the side wall of the processing chamber, stray capacitance can be reduced or substantially eliminated.

Furthermore, it is another object of the present invention to not only reduce capacitance, but also to reduce the amount of plasma, if any, that passes between the grounded metal shield and the cathode. Accordingly, the sputtering device of the present invention includes the gap that is carefully defined in claim 14 so as to substantially prevent plasma from passing through the gap.

Accordingly, in view of the foregoing amendments and remarks, claim 14 is clearly patentable over the applied prior art and should now be in condition for allowance.

The remaining claims, 16, 18, 29 and 30, depend from claim 14, and are thus also patentable over the applied prior art.

Claim 17 has been rejected under 35 U.S.C. § 103(a) as being patentable over Katsura in view of JP 57-194,254, hereinafter JP '254. However, the Examiner relies upon JP '254 only for the teaching of having a shield in the target being made of the same material. Accordingly, JP '254 does not otherwise overcome the deficiency of the rejection of claim 14. Accordingly, claim 17 is also patentable over the applied prior art.

Claims 19, 20, 22, 25 and 26-28 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Katsura in view of JP '254 and either the admitted prior art or Nakamura. In the discussion of this rejection, the Examiner refers also to JP '377 and JP '837. However, it is assumed that the reference to a JP reference refers to JP '254. If this is not the case, the Examiner is respectfully requested to restate the rejection.

However, JP '254 also does not overcome the deficiency of the rejection of claim 14 with respect to Katsura. Accordingly, claims 19, 20, 22, 25, and 26-28 are also patentable over the applied prior art.

To further define the protection to which the applicants are entitled, new claim 31 is submitted herewith. The new claim is similar to claim 14. However, among other differences, it defines the processing chamber, cathode, and the grounded metal shield as being arranged such that sufficient dielectric space is between the cathode and any grounded portion of the apparatus in order to substantially prevent the generation of stray

capacitance between the cathode and such grounded portion. Such structure is not taught or suggested by the applied prior art.

All matters now being addressed, the Examiner is respectfully urged to reconsider and withdraw the outstanding rejections.

In the event that there are any questions concerning this response, or the application in general, the Examiner is respectfully urged to telephone the undersigned attorney so that prosecution of the application may be expedited.

Respectfully submitted,

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